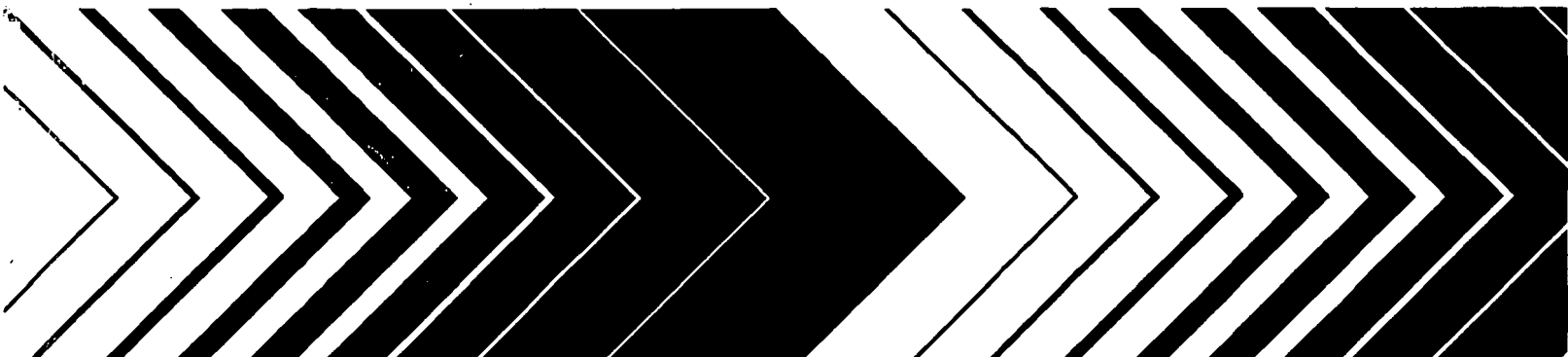


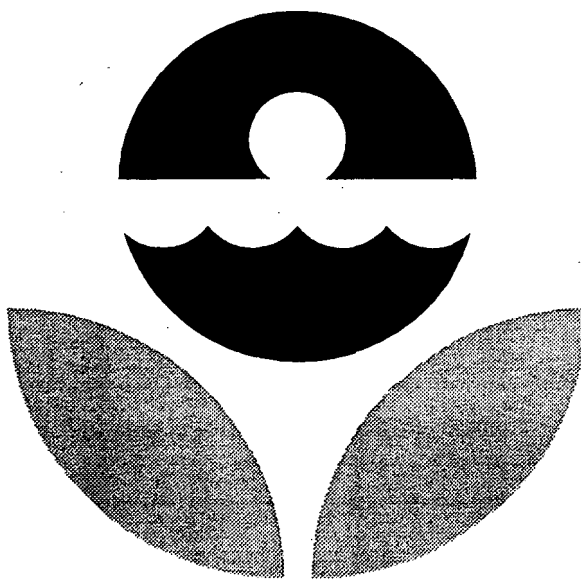


Gross Alpha-Beta in Water Intercomparison Study

A Statistical Evaluation of the January 31, 1992 Data



Gross Alpha-Beta in Water
Intercomparison Study
January 31, 1992



Environmental Protection Agency
Environmental Monitoring Systems Laboratory
Las Vegas, Nevada



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF RESEARCH AND DEVELOPMENT
ENVIRONMENTAL MONITORING SYSTEMS LABORATORY-LAS VEGAS
P.O. BOX 93478
LAS VEGAS, NEVADA 89193-3478
(702/798-2100 - FTS 545-2100)

Dear Participant,

Enclosed are the results of the Nuclear Radiation Assessment Division (EMSL-LV) Intercomparison Study for *Gross Alpha-Beta in Water; January 31, 1992*.

This report introduces a new format that we hope is easier to read and interpret. Although we have tested the software that produces this report carefully, and compared the results with the previous format, there is a possibility of error. We encourage you to examine the data and inform us of any apparent discrepancies.

We especially encourage you to make use of the computer-automated data-entry system that has been in place for some time now. As the number of participants increases, it becomes unrealistic for us to receive results by mail or FAX.

If you have any questions or comments, please send a message via the data-entry system or contact Frank Novielli at 702/798-2159 (FTS 545-2159) or Patricia Honsa at 702/798-2141 (FTS 545-2141).

Sincerely,

A handwritten signature in cursive script that reads "Frank Novielli".

Frank Novielli
Senior Chemist
Radioanalysis Branch

Enclosure

NOTICE

This material has been funded wholly (or in part) by the U.S. Environmental Protection Agency. It has been subject the Agency's review, and it has been approved for publication as an EPA document.

The following pages consist of separate sections for each of the nuclides in this study with four parts per section. After the first, each part is separated from the next by a new page or a thick horizontal bar. The first page of each section is a statistical summary for the nuclide and starts with a statement of the known value, the control limits, and the warning limits.

The warning limits are placed at two normalized standard deviations above and below the known value and the control limits are three normalized standard deviations above and below the known value. If you keep control charts, these values will be useful for anticipating problems with the accuracy of your analytical methods.

The coin shaped pie chart at the top of the summary page shows the fate of all the samples sent out in number and percentage terms. The pie chart starts at the top and rotates clockwise. The first sector represents those participants who submitted analytical results within both the warning and control limits. The next sector represents those who are in the warning region but not out of control. The third sector represents those who are out of control, but have passed the outlier test. The fourth sector represents those who have failed the outlier test. The last sector represents those participants who have failed to respond properly. This is the case if no analytical results were returned, or less than three determinations were reported, or if the results were received too late. The reeding on the edge of the coin is spaced at one percent intervals, and the sector shading becomes darker as the data reliability decreases. Sectors with zero width are not shown.

The table in the center shows a number of statistical quantities calculated from the submitted data based on the mean and median values in relation to the known value, both before and after outlier removal. The lower pie chart uses the same construction as the upper chart and shows the distribution of properly submitted data in terms of deviation from the known value divided into sectors representing one, two, three, and greater than three normalized standard deviations.

The second part is an alphabetical listing, in lab-code order, of submitted data and several calculated quantities. An entry that is shaded has been rejected because of one of the reasons listed above or failure of the outlier test. The fifth and sixth columns are a measure of laboratory precision. The Range analysis is a normalized value that you may use to keep precision control charts. If this value is between 2.0 and 3.0, your analytical process precision is in the warning zone; if it exceeds 3.0 it is out of control. The eighth and ninth columns are the differences from the mean of all non-outliers and from the known value, respectively. A tag symbol may appear in the last column. Each page with tags has a symbol definition summary at the bottom. If there is no tag symbol, the data is within the control limits, but it may be in the warning zone.

The third part is a three-column listing of result average, tag symbol, and lab-code in average order excluding those labs not responding properly. In this order, all outliers and out-of-control results appear at the top or bottom of the list.

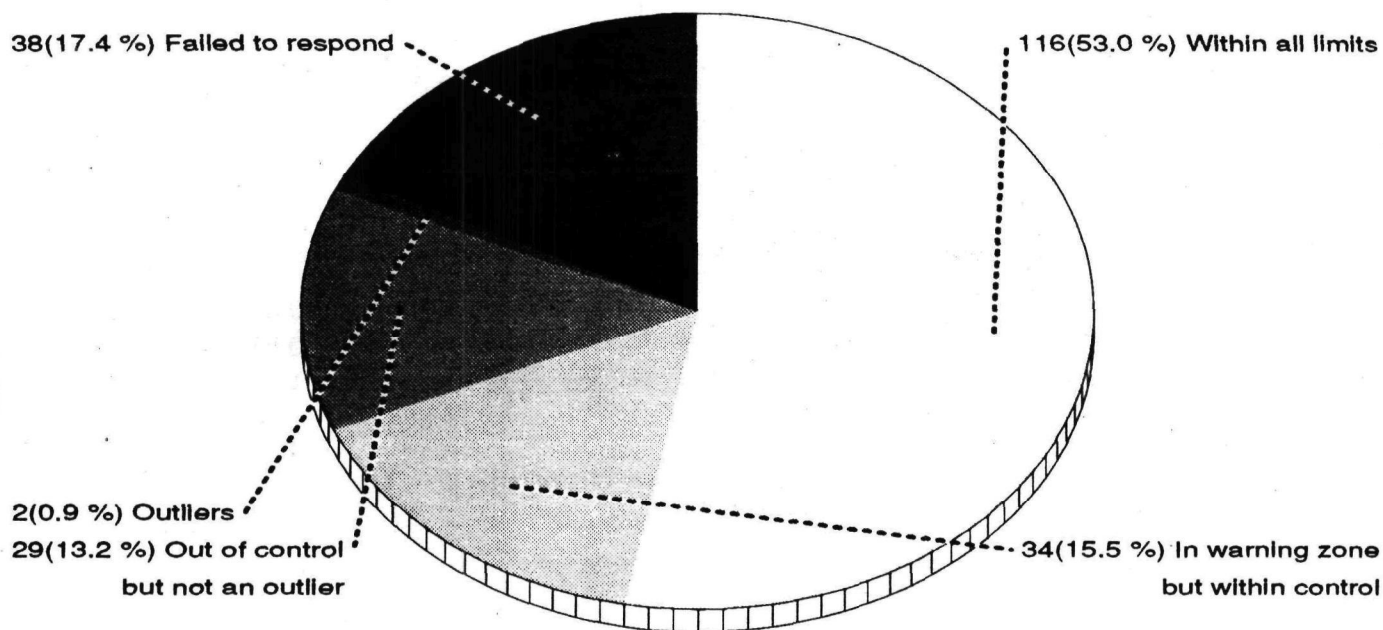
The last part is two bar chart displays showing frequency distributions of responding participants. The first chart places the known value at the center and a bar at each 0.2 unit of expected precision. The second chart places the mean of the reported measurements at the center and a bar at each 0.2 unit of standard deviation. In both cases, a bar includes those results within 0.1 unit up to the maximum of six. Any results more than six units from the center value are shown cumulatively by a shaded bar one past the sixth unit. If the central tendency of the known value distribution falls away from the center, an error in accuracy is indicated. If the distribution is broad, poor precision is indicated. The mean value distribution is similar but uses the average and standard deviation of reported results as its basis.

Gross Alpha

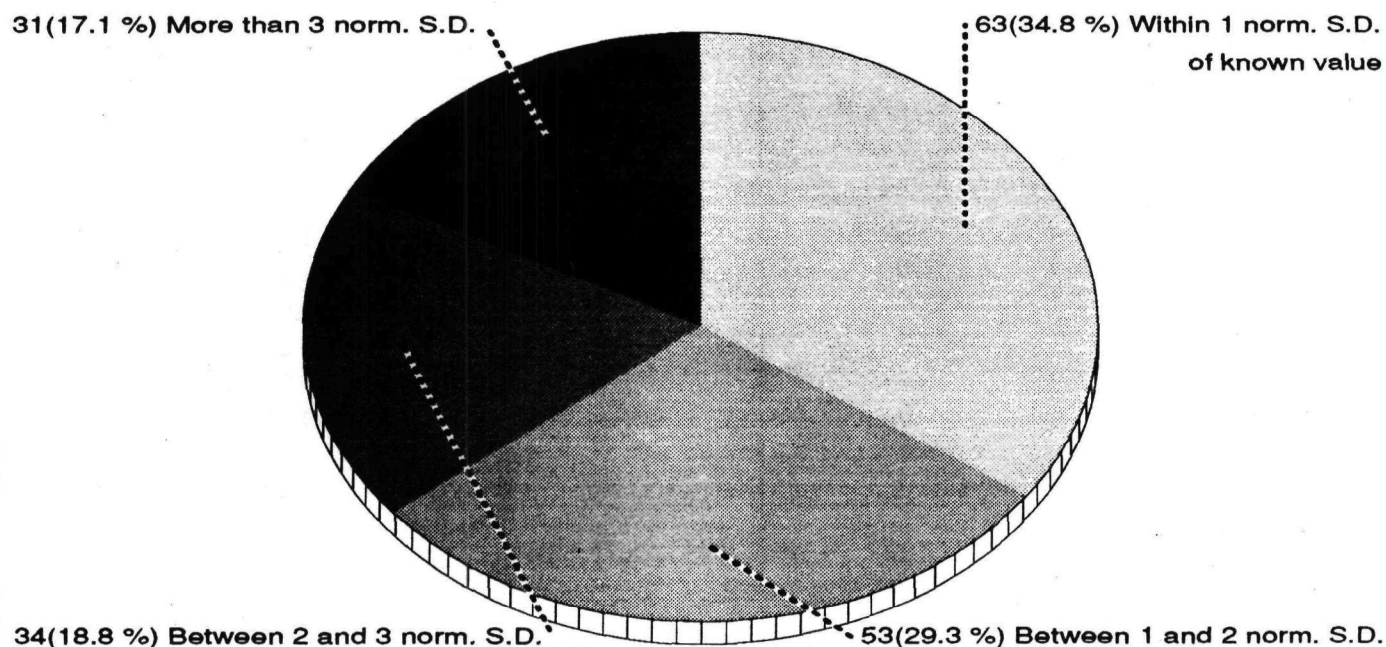
Statistical Summary

219 Participants

The known value of this nuclide is 30.0 pCi/l with an expected precision of 8.0; the control limits are 16.1 to 43.9, and the warning levels are 20.7 to 39.3



Statistic	Respondents	Non-outliers
Mean	24.42	Grand Avg 24.04
Std. Dev.	8.57	7.79
Variance	73.47	60.70
% Coef. of Var.	35.10	32.42
% deviation of mean from known value	-18.60	-19.88
Norm. dev. of mean from known value	-0.65	-0.77
Median	24.33	24.33
% deviation of median from known value	-18.89	-18.89
Norm. dev. of median from known value	-0.66	-0.73



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Gross Alpha

Lab	Res. 1	Res. 2	Res. 3	Exper. Sigma	Rng anal (R + SR)	Average	Normalized deviation (grand-avg) (known) Tag	
A	28.0	32.0	30.0	2.00	0.295	30.00	1.29	0.00
AB	36.0	35.0	38.0	1.53	0.222	36.33	2.66	1.37
AE	19.0	25.0	22.0	3.00	0.443	22.00	-0.44	-1.73
AF	30.0	34.0	33.0	2.08	0.295	32.33	1.80	0.51
AI	24.0	27.0	26.0	1.53	0.222	25.67	0.35	-0.94
AJ	8.0	8.0	8.0	0.00	0.000	8.00	-3.47	-4.76
AK	29.0	30.0	29.0	0.58	0.074	29.33	1.15	-0.14
AL	28.0	29.0	28.0	0.58	0.074	28.33	0.93	-0.36
AN								
AO	22.0	19.0	23.0	2.08	0.295	21.33	-0.59	-1.88
AP	23.0	25.0	28.0	2.52	0.369	25.33	0.28	-1.01
AR	32.0	33.0	29.0	2.08	0.295	31.33	1.58	0.29
AU	19.0	18.0	19.0	0.58	0.074	18.67	-1.16	-2.45
AW	20.0	19.0	19.0	0.58	0.074	19.33	-1.02	-2.31
AY								
AZ	35.0	32.0	30.0	2.52	0.369	32.33	1.80	0.51
BA	21.0	22.0	22.0	0.58	0.074	21.67	-0.51	-1.80
BB	27.0	27.0	30.0	1.73	0.222	28.00	0.86	-0.43
BC	34.0	34.0	32.0	1.15	0.148	33.33	2.01	0.72
BG	17.0	16.0	17.0	0.58	0.074	16.67	-1.60	-2.89
BH	22.0	21.0	23.0	1.00	0.148	22.00	-0.44	-1.73
BI	19.0	21.0	32.0	7.00	0.960	24.00	-0.01	-1.30
BK	29.0	30.0	32.0	1.53	0.222	30.33	1.36	0.07
BL	19.0	24.0	24.0	2.89	0.369	22.33	-0.37	-1.66
BM	27.0	27.0	29.0	1.15	0.148	27.67	0.79	-0.51
BN	29.0	30.0	26.0	2.08	0.295	28.33	0.93	-0.36
BO	17.0	17.0	20.0	1.73	0.222	18.00	-1.31	-2.60
BS	15.0	20.0	18.0	2.52	0.369	17.67	-1.38	-2.67
BW								
C	28.0	29.0	28.0	0.58	0.074	28.33	0.93	-0.36
CA	21.0	29.0	21.0	4.62	0.591	23.67	-0.08	-1.37
CE	27.0	27.0	27.0	0.00	0.000	27.00	0.64	-0.65
CG	34.0	27.0	30.0	3.51	0.517	30.33	1.36	0.07
CJ	21.0	25.0	29.0	4.00	0.591	25.00	0.21	-1.08
CK	29.0	28.0	25.0	2.08	0.295	27.33	0.71	-0.58
CO	18.0	16.0	13.0	2.52	0.369	15.67	-1.81	-3.10
CP	32.0	32.0	32.0	0.00	0.000	32.00	1.72	0.43
CQ	26.0	23.0	22.0	2.08	0.295	23.67	-0.08	-1.37
CS	33.0	32.0	35.0	1.53	0.222	33.33	2.01	0.72
CX	49.0	53.0	64.0	7.77	1.205	55.33	6.78	5.48
D	22.0	23.0	23.0	0.58	0.074	22.67	-0.30	-1.59
DB	30.0	36.0	33.0	3.00	0.443	33.00	1.94	0.65
DD	13.0	14.0	12.0	1.00	0.148	13.00	-2.39	-3.68
DE	25.0	25.0	26.0	0.58	0.074	25.33	0.28	-1.01
DG	20.0	17.0	17.0	1.73	0.222	18.00	-1.31	-2.60

• ≡ No data submitted

TAG SYMBOLS

↑ ≡ Above control limit

∅ ≡ Insufficient data

× ≡ Determined to be an outlier

↓ ≡ Below control limit

Gross Alpha

Lab	Res. 1	Res. 2	Res. 3	Exper. Sigma	Rng anal (R + SR)	Average	Normalized deviation (grand-avg) (known) Tag	
DH	20.0	20.0	21.0	0.58	0.074	20.33	-0.80	-2.09
DM								•
DO	13.0	20.0	19.0	3.79	0.517	17.33	-1.45	-2.74
DP	34.0	36.0	36.0	1.15	0.148	35.33	2.45	1.15
DR								•
DS	28.0	26.0	23.0	2.52	0.369	25.67	0.35	-0.94
DT	21.0	23.0	25.0	2.00	0.295	23.00	-0.22	-1.52
DX	19.0	19.0	19.0	0.00	0.000	19.00	-1.09	-2.38
DZ	22.0	22.0	22.0	0.00	0.000	22.00	-0.44	-1.73
E	26.0	24.0	33.0	4.73	0.665	27.67	0.79	-0.51
EA	36.0	38.0	38.0	1.15	0.148	37.33	2.88	1.59
EB	31.0	31.0	33.0	1.15	0.148	31.67	1.65	0.36
EH	31.0	26.0	28.0	2.52	0.369	28.33	0.93	-0.36
EK	53.0	32.0	41.0	10.54	2.049	42.00	3.89	2.60
EL	13.0	10.0	12.0	1.53	0.222	11.67	-2.68	-3.97 ↓
EN	26.0	32.0	33.0	3.79	0.517	30.33	1.36	0.07
EO	31.0	32.0	31.0	0.58	0.074	31.33	1.58	0.29
ER	30.0	30.0	30.0	0.00	0.000	30.00	1.29	0.00
ES								•
EV	27.0	25.0	26.0	1.00	0.148	26.00	0.43	-0.87
EW								•
FE	41.0	45.0	41.0	2.31	0.295	42.33	3.96	2.67
FF	24.0	22.0	24.0	1.15	0.148	23.33	-0.15	-1.44
FJ	9.0	8.0	8.0	0.58	0.074	8.33	-3.40	-4.69 ↓
FL	5.0	5.0	4.0	0.58	0.074	4.67	-4.19	-5.48 ↓
FN	23.0	22.0	22.0	0.58	0.074	22.33	-0.37	-1.66
FP	12.0	25.0	13.0	7.23	0.960	16.67	-1.60	-2.89
FU								•
FW	17.0	21.0	15.0	3.06	0.443	17.67	-1.38	-2.67
FZ								•
GE								•
GJ	18.0	18.0	21.0	1.73	0.222	19.00	-1.09	-2.38
GQ	25.0	22.0	20.0	2.52	0.369	22.33	-0.37	-1.66
GT	33.0	29.0	30.0	2.08	0.295	30.67	1.44	0.14
GV								•
GY								•
GZ								•
HH	17.0	18.0	17.0	0.58	0.074	17.33	-1.45	-2.74
HI	8.0	8.0	8.0	0.00	0.000	8.00	-3.47	-4.76 ↓
HK	15.0	15.0	15.0	0.00	0.000	15.00	-1.96	-3.25 ↓
HL	26.0	26.0	26.0	0.00	0.000	26.00	0.43	-0.87
HN	30.0	31.0	25.0	3.21	0.443	28.67	1.00	-0.29
HP	27.0	27.0	27.0	0.00	0.000	27.00	0.64	-0.65
HU								•
HY	29.0	29.0	30.0	0.58	0.074	29.33	1.15	-0.14

• = No data submitted

TAG SYMBOLS

↑ = Above control limit

Ø = Insufficient data

× = Determined to be an outlier

↓ = Below control limit

5 / 17 EMSL-LV Intercomparison Study: Gross Alpha-Beta in Water, 31-Jan-1992

Gross Alpha

Lab	Res. 1	Res. 2	Res. 3	Exper. Sigma	Rng anal (R + SR)	Average	Normalized deviation (grand-avg) (known)		Tag
I	25.0	23.0	23.0	1.15	0.148	23.67	-0.08	-1.37	
IC	56.0	60.0	71.0	7.77	1.205	62.33	8.29	7.00	×
ID	37.0	24.0	24.0	7.51	0.960	28.33	0.93	-0.36	
IE	32.0	31.0	31.0	0.58	0.074	31.33	1.58	0.29	
IU									•
J	17.0	18.0	16.0	1.00	0.148	17.00	-1.52	-2.81	
JE	27.0	30.0	23.0	3.51	0.517	26.67	0.57	-0.72	
JG	21.0	19.0	22.0	1.53	0.222	20.67	-0.73	-2.02	
JH	24.0	24.0	28.0	2.31	0.295	25.33	0.28	-1.01	
JM	11.0	12.0	10.0	1.00	0.148	11.00	-2.82	-4.11	↓
JN	22.0	25.0	23.0	1.53	0.222	23.33	-0.15	-1.44	
JP	21.0	20.0	22.0	1.00	0.148	21.00	-0.66	-1.95	
JQ	35.0	31.0	35.0	2.31	0.295	33.67	2.09	0.79	
JS	30.0	28.0	28.0	1.15	0.148	28.67	1.00	-0.29	
K	18.0	17.0	20.0	1.53	0.222	18.33	-1.23	-2.53	
KC	11.0	10.0	11.0	0.58	0.074	10.67	-2.89	-4.19	↓
KE	19.0	22.0	19.0	1.73	0.222	20.00	-0.87	-2.17	
KF									•
KT	30.0	30.0	30.0	0.00	0.000	30.00	1.29	0.00	
KX									•
KZ	25.0	24.0	24.0	0.58	0.074	24.33	0.06	-1.23	
L	26.0	25.0	25.0	0.58	0.074	25.33	0.28	-1.01	
LA	27.0	26.0	26.0	0.58	0.074	26.33	0.50	-0.79	
LE									•
LF	39.0	41.0	41.0	1.15	0.148	40.33	3.53	2.24	
LG	25.0	28.0	22.0	3.00	0.443	25.00	0.21	-1.08	
LL	25.0	26.0	27.0	1.00	0.148	26.00	0.43	-0.87	
LM									•
LR	14.0	14.0	12.0	1.15	0.148	13.33	-2.32	-3.61	↓
LS									•
LT	23.0	18.0	22.0	2.65	0.369	21.00	-0.66	-1.95	
LX	23.0	23.0	23.0	0.00	0.000	23.00	-0.22	-1.52	
LZ									•
M	30.0	31.0	30.0	0.58	0.074	30.33	1.36	0.07	
MA									•
ME	33.0	34.0	35.0	1.00	0.148	34.00	2.16	0.87	
ML									•
MQ	25.0	23.0	27.0	2.00	0.295	25.00	0.21	-1.08	
MS	30.0	37.0	44.0	7.00	1.064	37.00	2.81	1.52	
MV	21.0	22.0	21.0	0.58	0.074	21.33	-0.59	-1.88	
MX	12.0	13.0	15.0	1.53	0.222	13.33	-2.32	-3.61	↓
N	25.0	24.0	24.0	0.58	0.074	24.33	0.06	-1.23	
NA	35.0	35.0	35.0	0.00	0.000	35.00	2.37	1.08	
NE	26.0	26.0	24.0	1.15	0.148	25.33	0.28	-1.01	
NF	4.0	4.0	3.0	0.58	0.074	3.67	-4.41	-5.70	↓

• = No data submitted

TAG SYMBOLS

↑ = Above control limit

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× = Determined to be an outlier

↓ = Below control limit

Gross Alpha

Lab	Res. 1	Res. 2	Res. 3	Exper. Sigma	Rng anal (R + SR)	Average	Normalized deviation (grand-avg) (known)		Tag
NG	19.0	18.0	19.0	0.58	0.074	18.67	-1.16	-2.45	
NH	23.0	23.0	25.0	1.15	0.148	23.67	-0.08	-1.37	
NI	14.0	9.0	11.0	2.52	0.369	11.33	-2.75	-4.04	↓
NJ	14.0	17.0	17.0	1.73	0.222	16.00	-1.74	-3.03	↓
NK	20.0	21.0	20.0	0.58	0.074	20.33	-0.80	-2.09	
NO	23.0	24.0	25.0	1.00	0.148	24.00	-0.01	-1.30	
NP	15.0	15.0	16.0	0.58	0.074	15.33	-1.88	-3.18	↓
NT	15.0	14.0	16.0	1.00	0.148	15.00	-1.96	-3.25	↓
O	19.0	20.0	20.0	0.58	0.074	19.67	-0.95	-2.24	
OA	14.0	16.0	15.0	1.00	0.148	15.00	-1.96	-3.25	↓
OB	22.0	20.0	23.0	1.53	0.222	21.67	-0.51	-1.80	
OE	22.0	22.0	24.0	1.15	0.148	22.67	-0.30	-1.59	
OF	21.0	24.0	28.0	3.51	0.517	24.33	0.06	-1.23	
OL									•
OM									•
OS	25.0	24.0	24.0	0.58	0.074	24.33	0.06	-1.23	
OT									•
OY	31.0	32.0	32.0	0.58	0.074	31.67	1.65	0.36	
OZ	32.0	32.0	33.0	0.58	0.074	32.33	1.80	0.51	
P	18.0	18.0	17.0	0.58	0.074	17.67	-1.38	-2.67	
PA	19.0	17.0	17.0	1.15	0.148	17.67	-1.38	-2.67	
PB	25.0	25.0	25.0	0.00	0.000	25.00	0.21	-1.08	
PC	35.0	35.0	37.0	1.15	0.148	35.67	2.52	1.23	
PG	19.0	19.0	18.0	0.58	0.074	18.67	-1.16	-2.45	
PL									•
PP									•
PQ	31.0	26.0	30.0	2.65	0.369	29.00	1.07	-0.22	
PR	26.0	26.0	26.0	0.00	0.000	26.00	0.43	-0.87	
PV	16.0	16.0	18.0	1.15	0.148	16.67	-1.60	-2.89	
Q	36.0	37.0	31.0	3.21	0.443	34.67	2.30	1.01	
QC	25.0	27.0	28.0	1.53	0.222	26.67	0.57	-0.72	
QJ	25.0	26.0	26.0	0.58	0.074	25.67	0.35	-0.94	
QK									•
QM	4.0	5.0	4.0	0.58	0.074	4.33	-4.27	-5.56	↓
QP									•
QQ	19.0	18.0	17.0	1.00	0.148	18.00	-1.31	-2.60	
QT	17.0	14.0	14.0	1.73	0.222	15.00	-1.96	-3.25	↓
QU	28.0	27.0	25.0	1.53	0.222	26.67	0.57	-0.72	
QW	24.0	25.0	27.0	1.53	0.222	25.33	0.28	-1.01	
QX	13.0	12.0	12.0	0.58	0.074	12.33	-2.53	-3.82	↓
QZ	32.0	33.0	32.0	0.58	0.074	32.33	1.80	0.51	
R	24.0	23.0	22.0	1.00	0.148	23.00	-0.22	-1.52	
RB	28.0	27.0	23.0	2.65	0.369	26.00	0.43	-0.87	
RD									•
RE	32.0	35.0	36.0	2.08	0.295	34.33	2.23	0.94	

• = No data submitted

TAG SYMBOLS

↑ = Above control limit

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↓ = Below control limit

7 / 17 EMSL-LV Intercomparison Study: Gross Alpha-Beta in Water, 31-Jan-1992
Gross Alpha

Lab	Res. 1	Res. 2	Res. 3	Exper. Sigma	Rng anal (R + SR)	Average	Normalized deviation (grand-avg) (known)		Tag
RF									•
RG	23.0	28.0	26.0	2.52	0.369	25.67	0.35	-0.94	
RH	9.0	7.0	7.0	1.15	0.148	7.67	-3.54	-4.84	↓
RI									•
RJ	26.0	31.0	25.0	3.21	0.443	27.33	0.71	-0.58	
RK	11.0	10.0	12.0	1.00	0.148	11.00	-2.82	-4.11	↓
RM	25.0	22.0	25.0	1.73	0.222	24.00	-0.01	-1.30	
RN	27.0	30.0	28.0	1.53	0.222	28.33	0.93	-0.36	
RQ									•
RR	34.0	32.0	33.0	1.00	0.148	33.00	1.94	0.65	
RS	15.0	16.0	15.0	0.58	0.074	15.33	-1.88	-3.18	↓
RU									•
RV	57.0	40.0	39.0	10.12	1.627	45.33	4.61	3.32	↑
RW	31.0	33.0	31.0	1.15	0.148	31.67	1.65	0.36	
RY	25.0	26.0	21.0	2.65	0.369	24.00	-0.01	-1.30	
RZ	31.0	31.0	31.0	0.00	0.000	31.00	1.51	0.22	
S	28.0	29.0	29.0	0.58	0.074	28.67	1.00	-0.29	
SA	11.0	19.0	15.0	4.00	0.591	15.00	-1.96	-3.25	↓
SC	25.0	27.0	27.0	1.15	0.148	26.33	0.50	-0.79	
SD	50.0	42.0	49.0	4.36	0.591	47.00	4.97	3.68	↑
SF	20.0	24.0	23.0	2.08	0.295	22.33	-0.37	-1.66	
SG	20.0	21.0	20.0	0.58	0.074	20.33	-0.80	-2.09	
SI	32.0	31.0	31.0	0.58	0.074	31.33	1.58	0.29	
SJ									•
SL	26.0	25.0	21.0	2.65	0.369	24.00	-0.01	-1.30	
SM	14.0	15.0	15.0	0.58	0.074	14.67	-2.03	-3.32	↓
SN									•
SO									•
SR	32.0	30.0	33.0	1.53	0.222	31.67	1.65	0.36	
SS	18.0	20.0	21.0	1.53	0.222	19.67	-0.95	-2.24	
ST	18.0	18.0	19.0	0.58	0.074	18.33	-1.23	-2.53	
SU	20.0	16.0	23.0	3.51	0.517	19.67	-0.95	-2.24	
SW	9.0	14.0	13.0	2.65	0.369	12.00	-2.61	-3.90	↓
SX	35.0	33.0	30.0	2.52	0.369	32.67	1.87	0.58	
T	20.0	19.0	22.0	1.53	0.222	20.33	-0.80	-2.09	
U	22.0	24.0	20.0	2.00	0.295	22.00	-0.44	-1.73	
W	22.0	21.0	20.0	1.00	0.148	21.00	-0.66	-1.95	
X	35.0	35.0	37.0	1.15	0.148	35.67	2.52	1.23	
Y	18.0	17.0	21.0	2.08	0.295	18.67	-1.16	-2.45	

Data sorted by Laboratory Average

Average	Tag	Lab	Average	Tag	Lab	Average	Tag	Lab
3.67	↓	NF	7.67	↓	RH	8.33	↓	FJ
4.33	↓	QM	8.00	↓	HI	10.67	↓	KC
4.67	↓	FL	8.00	↓	AJ	11.00	↓	RK

• = No data submitted

TAG SYMBOLS

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∅ = Insufficient data

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↓ = Below control limit

Gross Alpha**Data sorted by Laboratory Average**

Average	Tag	Lab	Average	Tag	Lab	Average	Tag	Lab
11.00	↓	JM	20.33		T	25.33		QW
11.33	↓	NI	20.33		SG	25.33		NE
11.67	↓	EL	20.33		NK	25.33		L
12.00	↓	SW	20.33		DH	25.33		JH
12.33	↓	QX	20.67		JG	25.33		DE
13.00	↓	DD	21.00		W	25.33		AP
13.33	↓	MX	21.00		LT	25.67		RG
13.33	↓	LR	21.00		JP	25.67		QJ
14.67	↓	SM	21.33		MV	25.67		DS
15.00	↓	SA	21.33		AO	25.67		AI
15.00	↓	QT	21.67		OB	26.00		RB
15.00	↓	OA	21.67		BA	26.00		PR
15.00	↓	NT	22.00		U	26.00		LL
15.00	↓	HK	22.00		DZ	26.00		HL
15.33	↓	RS	22.00		BH	26.00		EV
15.33	↓	NP	22.00		AE	26.33		SC
15.67	↓	CO	22.33		SF	26.33		LA
16.00	↓	NJ	22.33		GQ	26.67		QU
16.67		PV	22.33		FN	26.67		QC
16.67		FP	22.33		BL	26.67		JE
16.67		BG	22.67		OE	27.00		HP
17.00		J	22.67		D	27.00		CE
17.33		HH	23.00		R	27.33		RJ
17.33		DO	23.00		LX	27.33		CK
17.67		PA	23.00		DT	27.67		E
17.67		P	23.33		JN	27.67		BM
17.67		FW	23.33		FF	28.00		BB
17.67		BS	23.67		NH	28.33		RN
18.00		QQ	23.67		I	28.33		ID
18.00		DG	23.67		CQ	28.33		EH
18.00		BO	23.67		CA	28.33		C
18.33		ST	24.00		SL	28.33		BN
18.33		K	24.00		RY	28.33		AL
18.67		Y	24.00		RM	28.67		S
18.67		PG	24.00		NO	28.67		JS
18.67		NG	24.00		BI	28.67		HN
18.67		AU	24.33		OS	29.00		PQ
19.00		GJ	24.33		OF	29.33		HY
19.00		DX	24.33		N	29.33		AK
19.33		AW	24.33		KZ	30.00		KT
19.67		SU	25.00		PB	30.00		ER
19.67		SS	25.00		MQ	30.00		A
19.67		O	25.00		LG	30.33		M
20.00		KE	25.00		CJ	30.33		EN

• = No data submitted

TAG SYMBOLS

↑ = Above control limit

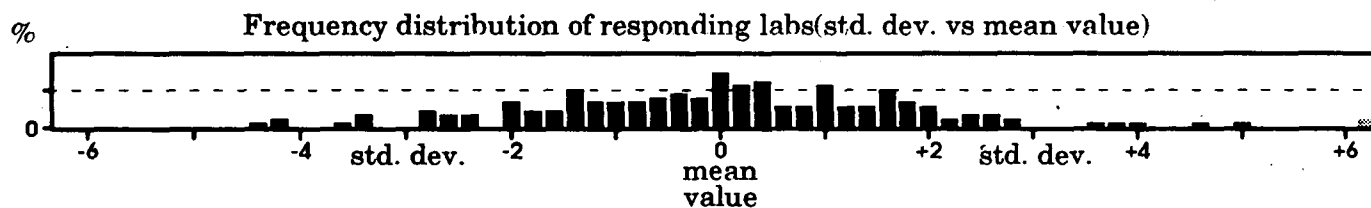
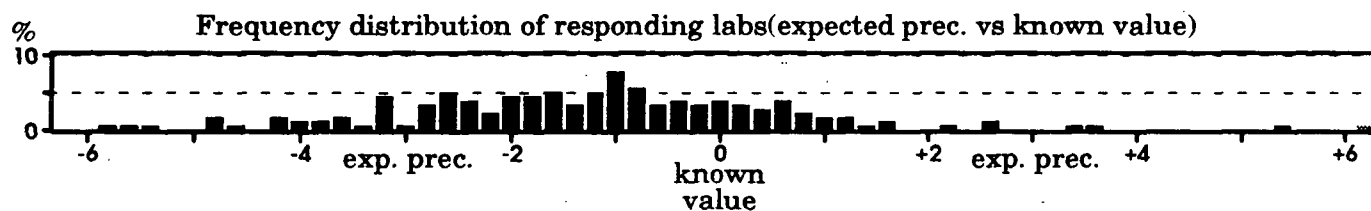
Ø = Insufficient data

× = Determined to be an outlier

↓ = Below control limit

Gross Alpha**Data sorted by Laboratory Average**

Average	Tag	Lab	Average	Tag	Lab	Average	Tag	Lab
30.33		CG	32.33		QZ	35.00		NA
30.33		BK	32.33		OZ	35.33		DP
30.67		GT	32.33		AZ	35.67		X
31.00		RZ	32.33		AF	35.67		PC
31.33		SI	32.67		SX	36.33		AB
31.33		IE	33.00		RR	37.00		MS
31.33		EO	33.00		DB	37.33		EA
31.33		AR	33.33		CS	40.33		LF
31.67		SR	33.33		BC	42.00		EK
31.67		RW	33.67		JQ	42.33		FE
31.67		OY	34.00		ME	45.33	↑	RV
31.67		EB	34.33		RE	47.00	↑	SD
32.00		CP	34.67		Q	55.33	×	CX
						62.33	×	IC



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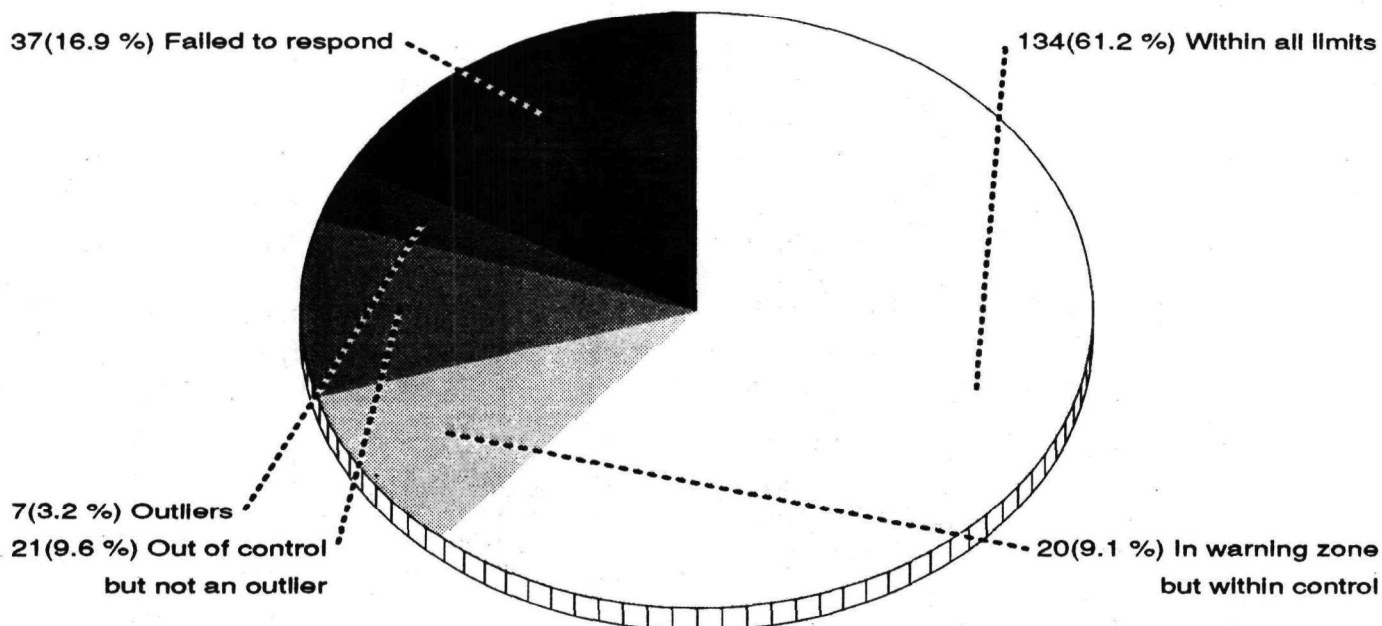
↓ = Below control limit

Gross Beta

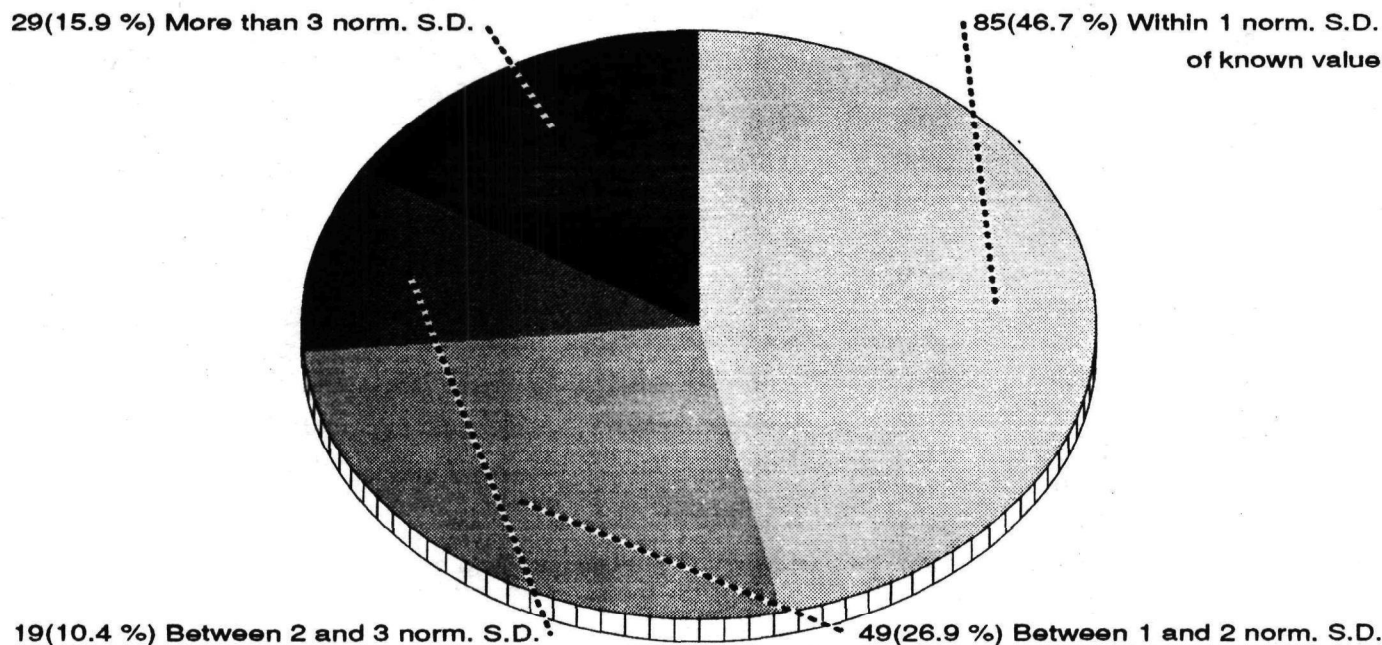
Statistical Summary

219 Participants

The known value of this nuclide is **30.0 pCi/l** with an expected precision of **5.0**; the control limits are 21.3 to 38.7, and the warning levels are 24.2 to 35.8



Statistic	Respondents	Non-outliers
Mean	31.27	Grand Avg 29.88
Std. Dev.	12.26	5.42
Variance	150.21	29.41
% Coef. of Var.	39.19	18.15
% deviation of mean from known value	4.23	-0.40
Norm. dev. of mean from known value	0.10	-0.02
Median	30.67	30.67
% deviation of median from known value	2.22	2.22
Norm. dev. of median from known value	0.05	0.12



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Gross Beta

Lab	Res. 1	Res. 2	Res. 3	Exper. Sigma	Rng anal (R + SR)	Average	Normalized deviation (grand-avg) (known)		Tag
A	30.0	30.0	30.0	0.00	0.000	30.00	0.04	0.00	
AB	26.0	25.0	25.0	0.58	0.118	25.33	-1.58	-1.62	
AE	25.0	24.0	23.0	1.00	0.236	24.00	-2.04	-2.08	
AF	30.0	32.0	32.0	1.15	0.236	31.33	0.50	0.46	
AI	28.0	32.0	31.0	2.08	0.473	30.33	0.16	0.12	
AJ	29.0	30.0	30.0	0.58	0.118	29.67	-0.07	-0.12	
AK	32.0	34.0	33.0	1.00	0.236	33.00	1.08	1.04	
AL	24.0	23.0	21.0	1.53	0.354	22.67	-2.50	-2.54	
AN									•
AO	2.0	3.0	4.0	1.00	0.236	3.00	-9.31	-9.35	×
AP	24.0	26.0	27.0	1.53	0.354	25.67	-1.46	-1.50	
AR	30.0	32.0	31.0	1.00	0.236	31.00	0.39	0.35	
AU	28.0	28.0	27.0	0.58	0.118	27.67	-0.77	-0.81	
AW	32.0	31.0	31.0	0.58	0.118	31.33	0.50	0.46	
AY									•
AZ	25.0	23.0	26.0	1.53	0.354	24.67	-1.81	-1.85	
BA	33.0	33.0	33.0	0.00	0.000	33.00	1.08	1.04	
BB	35.0	35.0	36.0	0.58	0.118	35.33	1.89	1.85	
BC	19.0	21.0	25.0	3.06	0.709	21.67	-2.85	-2.89	
BG	26.0	27.0	29.0	1.53	0.354	27.33	-0.88	-0.92	
BH	30.0	30.0	29.0	0.58	0.118	29.67	-0.07	-0.12	
BI	33.0	32.0	32.0	0.58	0.118	32.33	0.85	0.81	
BK	30.0	35.0	32.0	2.52	0.591	32.33	0.85	0.81	
BL	29.0	30.0	35.0	3.21	0.709	31.33	0.50	0.46	
BM	31.0	29.0	32.0	1.53	0.354	30.67	0.27	0.23	
BN	25.0	24.0	26.0	1.00	0.236	25.00	-1.69	-1.73	
BO	33.0	32.0	32.0	0.58	0.118	32.33	0.85	0.81	
BS	32.0	32.0	34.0	1.15	0.236	32.67	0.97	0.92	
BW									•
C	30.0	30.0	30.0	0.00	0.000	30.00	0.04	0.00	
CA	26.0	30.0	27.0	2.08	0.473	27.67	-0.77	-0.81	
CE	35.0	38.0	34.0	2.08	0.473	35.67	2.00	1.96	
CG	30.0	31.0	30.0	0.58	0.118	30.33	0.16	0.12	
CJ	32.0	31.0	32.0	0.58	0.118	31.67	0.62	0.58	
CK	32.0	33.0	34.0	1.00	0.236	33.00	1.08	1.04	
CO	26.0	27.0	27.0	0.58	0.118	26.67	-1.11	-1.15	
CP	44.0	43.0	43.0	0.58	0.118	43.33	4.66	4.62	↑
CQ	41.0	39.0	39.0	1.15	0.236	39.67	3.39	3.35	↑
CS	32.0	31.0	32.0	0.58	0.118	31.67	0.62	0.58	
CX	30.0	31.0	35.0	2.65	0.591	32.00	0.73	0.69	
D	31.0	32.0	31.0	0.58	0.118	31.33	0.50	0.46	
DB	29.0	28.0	31.0	1.53	0.354	29.33	-0.19	-0.23	
DD	32.0	32.0	31.0	0.58	0.118	31.67	0.62	0.58	
DE	34.0	34.0	35.0	0.58	0.118	34.33	1.54	1.50	
DG	35.0	44.0	40.0	4.51	1.120	39.67	3.39	3.35	↑

• = No data submitted

TAG SYMBOLS

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× = Determined to be an outlier

↓ = Below control limit

Gross Beta

Lab	Res. 1	Res. 2	Res. 3	Exper. Sigma	Rng anal (R + SR)	Average	Normalized deviation (grand-avg) (known) Tag	
DH	30.0	31.0	31.0	0.58	0.118	30.67	0.27	0.23
DM	21.0	20.0	21.0	0.58	0.118	20.67	-3.19	-3.23 ↓
DO	33.0	34.0	35.0	1.00	0.236	34.00	1.43	1.39
DP	34.0	34.0	37.0	1.73	0.354	35.00	1.77	1.73
DR	32.0	33.0	32.0	0.58	0.118	32.33	0.85	0.81
DS	29.0	27.0	28.0	1.00	0.236	28.00	-0.65	-0.69
DT	30.0	31.0	31.0	0.58	0.118	30.67	0.27	0.23
DX	32.0	33.0	32.0	0.58	0.118	32.33	0.85	0.81
DZ	31.0	31.0	31.0	0.00	0.000	31.00	0.39	0.35
E	32.0	31.0	32.0	0.58	0.118	31.67	0.62	0.58
EA	32.0	31.0	31.0	0.58	0.118	31.33	0.50	0.46
EB	32.0	33.0	35.0	1.53	0.354	33.33	1.20	1.15
EH	30.0	30.0	31.0	0.58	0.118	30.33	0.16	0.12
EK	53.0	44.0	44.0	5.20	1.120	47.00	5.93	5.89 ↑
EL	31.0	35.0	31.0	2.31	0.473	32.33	0.85	0.81
EN	23.0	24.0	30.0	3.79	0.827	25.67	-1.46	-1.50
EO	34.0	32.0	34.0	1.15	0.236	33.33	1.20	1.15
ER								•
ES								•
EV	28.0	30.0	30.0	1.15	0.236	29.33	-0.19	-0.23
EW	29.0	32.0	34.0	2.52	0.591	31.67	0.62	0.58
FE	26.0	28.0	26.0	1.15	0.236	26.67	-1.11	-1.15
FF	31.0	32.0	34.0	1.53	0.354	32.33	0.85	0.81
FJ	42.0	40.0	42.0	1.15	0.236	41.33	3.97	3.93 ↑
FL	26.0	25.0	25.0	0.58	0.118	25.33	-1.58	-1.62
FN	32.0	32.0	36.0	2.31	0.473	33.33	1.20	1.15
FP	36.0	33.0	30.0	3.00	0.709	33.00	1.08	1.04
FU								•
FW								•
FZ								•
GE	30.0	30.0	31.0	0.58	0.118	30.33	0.16	0.12
GJ	94.0	84.0	87.0	5.13	1.345	88.33	20.25	20.21 ×
GQ	27.0	26.0	27.0	0.58	0.118	26.67	-1.11	-1.15
GT	14.0	16.0	11.0	2.52	0.591	13.67	-5.62	-5.66 ↓
GV								•
GY								•
GZ								•
HH	30.0	31.0	31.0	0.58	0.118	30.67	0.27	0.23
HI	25.0	30.0	20.0	5.00	1.345	25.00	-1.69	-1.73
HK	31.0	32.0	32.0	0.58	0.118	31.67	0.62	0.58
HL	40.0	40.0	40.0	0.00	0.000	40.00	3.51	3.46 ↑
HN								•
HP	32.0	32.0	32.0	0.00	0.000	32.00	0.73	0.69
HU								•
HY	92.0	83.0	72.0	10.02	3.596	82.33	18.17	18.13 ×

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↓ = Below control limit

13 / 17 EMSL-LV Intercomparison Study: Gross Alpha-Beta in Water, 31-Jan-1992

Gross Beta

Lab	Res. 1	Res. 2	Res. 3	Exper. Sigma	Rng anal (R + SR)	Average	Normalized deviation (grand-avg) (known)		Tag
I	29.0	33.0	31.0	2.00	0.473	31.00	0.39	0.35	
IC	65.0	63.0	68.0	2.52	0.591	65.33	12.28	12.24	×
ID	30.0	31.0	22.0	4.93	1.120	27.67	-0.77	-0.81	
IE	27.0	31.0	25.0	3.06	0.709	27.67	-0.77	-0.81	
IU	20.0	20.0	20.0	0.00	0.000	20.00	-3.42	-3.46	↓
J	28.0	27.0	28.0	0.58	0.118	27.67	-0.77	-0.81	
JE	38.0	38.0	34.0	2.31	0.473	36.67	2.35	2.31	
JG	31.0	29.0	30.0	1.00	0.236	30.00	0.04	0.00	
JH	132.0	132.0	129.0	1.73	0.354	131.00	35.03	34.99	×
JM	18.0	20.0	17.0	1.53	0.354	18.33	-4.00	-4.04	↓
JN	34.0	34.0	32.0	1.15	0.236	33.33	1.20	1.15	
JP	28.0	28.0	30.0	1.15	0.236	28.67	-0.42	-0.46	
JQ									•
JS	32.0	32.0	35.0	1.73	0.354	33.00	1.08	1.04	
K	33.0	31.0	29.0	2.00	0.473	31.00	0.39	0.35	
KC	16.0	17.0	17.0	0.58	0.118	16.67	-4.58	-4.62	↓
KE	26.0	27.0	25.0	1.00	0.236	26.00	-1.34	-1.39	
KF									•
KT	38.0	38.0	38.0	0.00	0.000	38.00	2.81	2.77	
KX									•
KZ	28.0	29.0	29.0	0.58	0.118	28.67	-0.42	-0.46	
L	28.0	29.0	28.0	0.58	0.118	28.33	-0.54	-0.58	
LA	34.0	34.0	34.0	0.00	0.000	34.00	1.43	1.39	
LE									•
LF	31.0	31.0	29.0	1.15	0.236	30.33	0.16	0.12	
LG	30.0	32.0	24.0	4.16	0.945	28.67	-0.42	-0.46	
LL	32.0	33.0	34.0	1.00	0.236	33.00	1.08	1.04	
LM									•
LR	38.0	38.0	38.0	0.00	0.000	38.00	2.81	2.77	
LS									•
LT	38.0	31.0	29.0	4.73	1.120	32.67	0.97	0.92	
LX									•
LZ									•
M	29.0	28.0	30.0	1.00	0.236	29.00	-0.30	-0.35	
MA									•
ME	27.0	27.0	27.0	0.00	0.000	27.00	-1.00	-1.04	
ML									•
MQ	23.0	25.0	23.0	1.15	0.236	23.67	-2.15	-2.19	
MS	25.0	27.0	31.0	3.06	0.709	27.67	-0.77	-0.81	
MV	31.0	30.0	31.0	0.58	0.118	30.67	0.27	0.23	
MX	42.0	42.0	38.0	2.31	0.473	40.67	3.74	3.70	↑
N	32.0	33.0	30.0	1.53	0.354	31.67	0.62	0.58	
NA	35.0	35.0	35.0	0.00	0.000	35.00	1.77	1.73	
NE	25.0	26.0	25.0	0.58	0.118	25.33	-1.58	-1.62	
NF	4.0	5.0	3.0	1.00	0.236	4.00	-8.97	-9.01	×

• = No data submitted

TAG SYMBOLS

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↓ = Below control limit

Gross Beta

Lab	Res. 1	Res. 2	Res. 3	Exper. Sigma	Rng anal (R + SR)	Average	Normalized deviation (grand-avg) (known)		Tag
NG	18.0	21.0	19.0	1.53	0.354	19.33	-3.65	-3.70	↓
NH	27.0	27.0	28.0	0.58	0.118	27.33	-0.88	-0.92	
NI	25.0	23.0	26.0	1.53	0.354	24.67	-1.81	-1.85	
NJ	24.0	25.0	22.0	1.53	0.354	23.67	-2.15	-2.19	
NK	27.0	27.0	27.0	0.00	0.000	27.00	-1.00	-1.04	
NO	29.0	29.0	32.0	1.73	0.354	30.00	0.04	0.00	
NP	30.0	29.0	29.0	0.58	0.118	29.33	-0.19	-0.23	
NT	28.0	29.0	30.0	1.00	0.236	29.00	-0.30	-0.35	
O	34.0	32.0	33.0	1.00	0.236	33.00	1.08	1.04	
OA	37.0	38.0	36.0	1.00	0.236	37.00	2.47	2.42	
OB	37.0	34.0	35.0	1.53	0.354	35.33	1.89	1.85	
OE	37.0	37.0	39.0	1.15	0.236	37.67	2.70	2.66	
OF	27.0	28.0	29.0	1.00	0.236	28.00	-0.65	-0.69	
OL									•
OM									•
OS	38.0	37.0	36.0	1.00	0.236	37.00	2.47	2.42	
OT	33.0	30.0	28.0	2.52	0.591	30.33	0.16	0.12	
OY	31.0	30.0	32.0	1.00	0.236	31.00	0.39	0.35	
OZ	27.0	27.0	27.0	0.00	0.000	27.00	-1.00	-1.04	
P	42.0	41.0	42.0	0.58	0.118	41.67	4.08	4.04	↑
PA	32.0	30.0	30.0	1.15	0.236	30.67	0.27	0.23	
PB	30.0	30.0	30.0	0.00	0.000	30.00	0.04	0.00	
PC	27.0	27.0	26.0	0.58	0.118	26.67	-1.11	-1.15	
PG	30.0	31.0	30.0	0.58	0.118	30.33	0.16	0.12	
PL									•
PP									•
PQ	23.0	25.0	28.0	2.52	0.591	25.33	-1.58	-1.62	
PR	31.0	31.0	31.0	0.00	0.000	31.00	0.39	0.35	
PV	32.0	34.0	30.0	2.00	0.473	32.00	0.73	0.69	
Q	16.0	15.0	22.0	3.79	0.827	17.67	-4.23	-4.27	↓
QC	23.0	23.0	21.0	1.15	0.236	22.33	-2.61	-2.66	
QJ	28.0	31.0	30.0	1.53	0.354	29.67	-0.07	-0.12	
QK	23.0	24.0	22.0	1.00	0.236	23.00	-2.38	-2.42	
QM	22.0	22.0	20.0	1.15	0.236	21.33	-2.96	-3.00	
QP									•
QQ	31.0	33.0	30.0	1.53	0.354	31.33	0.50	0.46	
QT	89.0	93.0	82.0	5.57	1.570	88.00	20.13	20.09	×
QU	36.0	35.0	33.0	1.53	0.354	34.67	1.66	1.62	
QW	29.0	31.0	33.0	2.00	0.473	31.00	0.39	0.35	
QX	31.0	31.0	32.0	0.58	0.118	31.33	0.50	0.46	
QZ	32.0	30.0	25.0	3.61	0.827	29.00	-0.30	-0.35	
R	37.0	34.0	36.0	1.53	0.354	35.67	2.00	1.96	
RB	22.0	22.0	23.0	0.58	0.118	22.33	-2.61	-2.66	
RD									•
RE	30.0	27.0	25.0	2.52	0.591	27.33	-0.88	-0.92	

• ≡ No data submitted

TAG SYMBOLS

↑ ≡ Above control limit

∅ ≡ Insufficient data

× ≡ Determined to be an outlier

↓ ≡ Below control limit

15 / 17 EMSL-LV Intercomparison Study: Gross Alpha-Beta in Water, 31-Jan-1992
Gross Beta

Lab	Res. 1	Res. 2	Res. 3	Exper. Sigma	Rng anal (R + SR)	Average	Normalized deviation (grand-avg) (known)		Tag
RF									•
RG	23.0	23.0	23.0	0.00	0.000	23.00	-2.38	-2.42	
RH	19.0	14.0	18.0	2.65	0.591	17.00	-4.46	-4.50	↓
RI									•
RJ	34.0	31.0	33.0	1.53	0.354	32.67	0.97	0.92	
RK	25.0	28.0	27.0	1.53	0.354	26.67	-1.11	-1.15	
RM	29.0	29.0	28.0	0.58	0.118	28.67	-0.42	-0.46	
RN	18.0	17.0	20.0	1.53	0.354	18.33	-4.00	-4.04	↓
RQ									•
RR	34.0	32.0	34.0	1.15	0.236	33.33	1.20	1.15	
RS	21.0	30.0	36.0	7.55	2.470	29.00	-0.30	-0.35	
RU									•
RV	26.0	26.0	22.0	2.31	0.473	24.67	-1.81	-1.85	
RW	29.0	40.0	48.0	9.54	3.371	39.00	3.16	3.12	↑
RY	34.0	33.0	35.0	1.00	0.236	34.00	1.43	1.39	
RZ									•
S	35.0	36.0	37.0	1.00	0.236	36.00	2.12	2.08	
SA	32.0	34.0	29.0	2.52	0.591	31.67	0.62	0.58	
SC	35.0	40.0	37.0	2.52	0.591	37.33	2.58	2.54	
SD	16.0	15.0	18.0	1.53	0.354	16.33	-4.69	-4.73	↓
SF	19.0	19.0	18.0	0.58	0.118	18.67	-3.88	-3.93	↓
SG	31.0	29.0	29.0	1.15	0.236	29.67	-0.07	-0.12	
SI	35.0	34.0	34.0	0.58	0.118	34.33	1.54	1.50	
SJ									•
SL	28.0	26.0	21.0	3.61	0.827	25.00	-1.69	-1.73	
SM	31.0	31.0	31.0	0.00	0.000	31.00	0.39	0.35	
SN									•
SO									•
SR	37.0	31.0	33.0	3.06	0.709	33.67	1.31	1.27	
SS	33.0	32.0	31.0	1.00	0.236	32.00	0.73	0.69	
ST	27.0	27.0	26.0	0.58	0.118	26.67	-1.11	-1.15	
SU	16.0	15.0	21.0	3.21	0.709	17.33	-4.35	-4.39	↓
SW	40.0	31.0	35.0	4.51	1.120	35.33	1.89	1.85	
SX	36.0	36.0	39.0	1.73	0.354	37.00	2.47	2.42	
T	29.0	32.0	31.0	1.53	0.354	30.67	0.27	0.23	
U	31.0	29.0	31.0	1.15	0.236	30.33	0.16	0.12	
W	24.0	23.0	24.0	0.58	0.118	23.67	-2.15	-2.19	
X	28.0	29.0	28.0	0.58	0.118	28.33	-0.54	-0.58	
Y	26.0	26.0	25.0	0.58	0.118	25.67	-1.46	-1.50	

Data sorted by Laboratory Average

Average	Tag	Lab	Average	Tag	Lab	Average	Tag	Lab
3.00	×	AO	16.33	↓	SD	17.33	↓	SU
4.00	×	NF	16.67	↓	KC	17.67	↓	Q
13.67	↓	GT	17.00	↓	RH	18.33	↓	RN

• ≡ No data submitted

TAG SYMBOLS

↑ ≡ Above control limit

∅ ≡ Insufficient data

× ≡ Determined to be an outlier

↓ ≡ Below control limit

Gross Beta

Data sorted by Laboratory Average

Average	Tag	Lab	Average	Tag	Lab	Average	Tag	Lab
18.33	↓	JM	27.67		IE	31.00		QW
18.67	↓	SF	27.67		ID	31.00		PR
19.33	↓	NG	27.67		CA	31.00		OY
20.00	↓	IU	27.67		AU	31.00		K
20.67	↓	DM	28.00		OF	31.00		I
21.33		QM	28.00		DS	31.00		DZ
21.67		BC	28.33		X	31.00		AR
22.33		RB	28.33		L	31.33		QX
22.33		QC	28.67		RM	31.33		QQ
22.67		AL	28.67		LG	31.33		EA
23.00		RG	28.67		KZ	31.33		D
23.00		QK	28.67		JP	31.33		BL
23.67		W	29.00		RS	31.33		AW
23.67		NJ	29.00		QZ	31.33		AF
23.67		MQ	29.00		NT	31.67		SA
24.00		AE	29.00		M	31.67		N
24.67		RV	29.33		NP	31.67		HK
24.67		NI	29.33		EV	31.67		EW
24.67		AZ	29.33		DB	31.67		E
25.00		SL	29.67		SG	31.67		DD
25.00		HI	29.67		QJ	31.67		CS
25.00		BN	29.67		BH	31.67		CJ
25.33		PQ	29.67		AJ	32.00		SS
25.33		NE	30.00		PB	32.00		PV
25.33		FL	30.00		NO	32.00		HP
25.33		AB	30.00		JG	32.00		CX
25.67		Y	30.00		C	32.33		FF
25.67		EN	30.00		A	32.33		EL
25.67		AP	30.33		U	32.33		DX
26.00		KE	30.33		PG	32.33		DR
26.67		ST	30.33		OT	32.33		BO
26.67		RK	30.33		LF	32.33		BK
26.67		PC	30.33		GE	32.33		BI
26.67		GQ	30.33		EH	32.67		RJ
26.67		FE	30.33		CG	32.67		LT
26.67		CO	30.33		AI	32.67		BS
27.00		OZ	30.67		T	33.00		O
27.00		NK	30.67		PA	33.00		LL
27.00		ME	30.67		MV	33.00		JS
27.33		RE	30.67		HH	33.00		FP
27.33		NH	30.67		DT	33.00		CK
27.33		BG	30.67		DH	33.00		BA
27.67		MS	30.67		BM	33.00		AK
27.67		J	31.00		SM	33.33		RR

• ≡ No data submitted

TAG SYMBOLS

↑ ≡ Above control limit

∅ ≡ Insufficient data

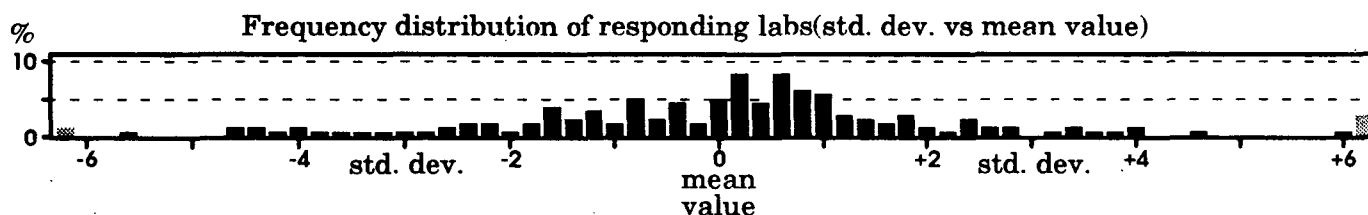
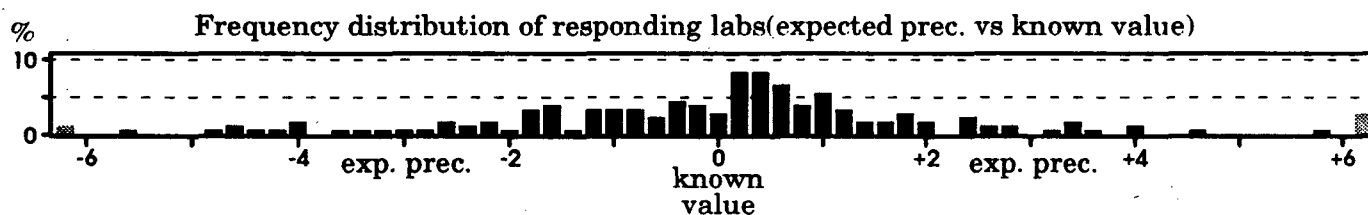
× ≡ Determined to be an outlier

↓ ≡ Below control limit

Gross Beta

Data sorted by Laboratory Average

Average	Tag	Lab	Average	Tag	Lab	Average	Tag	Lab
33.33		JN	35.33		SW	39.00	↑	RW
33.33		FN	35.33		OB	39.67	↑	DG
33.33		EO	35.33		BB	39.67	↑	CQ
33.33		EB	35.67		R	40.00	↑	HL
33.67		SR	35.67		CE	40.67	↑	MX
34.00		RY	36.00		S	41.33	↑	FJ
34.00		LA	36.67		JE	41.67	↑	P
34.00		DO	37.00		SX	43.33	↑	CP
34.33		SI	37.00		OS	47.00	↑	EK
34.33		DE	37.00		OA	65.33	×	IC
34.67		QU	37.33		SC	82.33	×	HY
35.00		NA	37.67		OE	88.00	×	QT
35.00		DP	38.00		LR	88.33	×	GJ
			38.00		KT	131.00	×	JH



• ≡ No data submitted

TAG SYMBOLS

↑ ≡ Above control limit

∅ ≡ Insufficient data

× ≡ Determined to be an outlier

↓ ≡ Below control limit